Claims

1. A method for selectively assaying a target adiponectin multimer in a biological sample, comprising a step of distinguishing target adiponectin multimer from the other adiponectin multimers by using a protease and/or an antibody to assay immunologically.

2. The method as described in claim 1, wherein the protease and/or the antibody are employed in distinguishing the target adiponectin multimer from the other adiponectin multimers by allowing the protease to reacted with the latter multimers, and assaying immunologically the remained target adiponectin multimer.

3. The method as described in claim 1, wherein the protease and/or the antibody are employed in distinguishing the target adiponectin multimer from the other adiponectin multimers by allowing the protease to reacted with the target adiponectin multimer and assaying immunologically the digested product of the target adiponectin multimer.

4. The method as described in any one of claims 1 to 3, wherein the adiponectin multimer is derived from human blood.

5. The method as described in any one of claims 1 to 4, wherein the adiponectin multimer derived from human blood is of the following four types of adiponectin, and one or two of the four types of adiponectin are selected from the total adiponectin and immunoassayed, through use of a protease and/or an antibody;

(1) ULMW-Ad: exhibits the highest mobility among the four

main stained bands detected when adiponectin which has been purified from human serum or human plasma is electrophoresed on polyacrylamide gel (2 to 15%) under non-denaturing conditions, and has a molecular weight around 100 kDa as measured through SDS-PAGE after intramolecular crosslinking;

(2) LMW-Ad: exhibits the second highest mobility, next to ULMW-Ad, among the four main stained bands detected when adiponectin which has been purified from human serum or human plasma is electrophoresed on polyacrylamide gel (2 to 15%) under non-denaturing conditions, has a molecular weight around 150 kDa as measured through SDS-PAGE after intramolecular crosslinking, and binds to albumin via a disulfide bond;

(3) MMW-Ad: exhibits the third highest mobility, next to LMW-Ad, among the four main stained bands detected when adiponectin which has been purified from human serum or human plasma is electrophoresed on polyacrylamide gel (2 to 15%) under non-denaturing conditions, and has a molecular weight around 250 kDa as measured through SDS-PAGE after intramolecular crosslinking; and

(4) HMW-Ad: exhibits the lowest mobility among the four main stained bands detected when adiponectin which has been purified from human serum or human plasma is electrophoresed on polyacrylamide gel (2 to 15%) under non-denaturing conditions, and has a molecular weight of 300 kDa or higher as measured through SDS-PAGE after intramolecular crosslinking.

6. The method as described in any one of claims 1 to 5, wherein the antibody is an anti-albumin antibody and/or an anti-adiponectin antibody.

7. The method as described in claim 5 or 6, wherein the adiponectin to be assayed selectively is ULMW-Ad and/or LMW-Ad.

8. The method as described in claim 5 or 6, wherein the adiponectin to be assayed selectively is MMW-Ad, HMW-Ad, or a combination of MMW-Ad and HMW-Ad.

9. The method as described in claim 5, 6, or 8, wherein the adiponectin to be assayed selectively is HMW-Ad, and HMW-Ad is assayed selectively through reaction of a protease with the three types of adiponectin other than HMW-Ad.

10. The method as described in claim 5, 6, 8, or 9, wherein, prior to assay of HMW-Ad, a protease is reacted with the three types of adiponectin other than HMW-Ad.

11. The method as described in claim 5, 6, or 8, wherein the adiponectin to be assayed selectively is MMW-Ad, and MMW-Ad is separated and assayed through means that includes processing of ULMW-Ad and LMW-Ad with a protease, calculation of the total amount of HMW-Ad and MMW-Ad that remain, and subtraction of the amount of HMW-Ad from the total amount of HMW-Ad and MMW-Ad.

12. The method as described in any one of claims 5 to 7, wherein the adiponectin to be assayed selectively is LMW-Ad, and LMW-Ad is assayed selectively through means that includes a combination use of an anti-albumin antibody and an anti-

adiponectin antibody.

13. The method as described in any one of claims 5 to 7, wherein the adiponectin to be assayed selectively is ULMW-Ad, and ULMW-Ad is assayed selectively through means that includes processing of ULMW-Ad and LMW-Ad with a protease, calculation of the total amount of HMW-Ad and MMW-Ad that remain, and subtraction of the total amount of HMW-Ad and MMW-Ad and the amount of LMW-Ad from the total amount of adiponectin, which has been determined separately.

14. A method for evaluating a disease or a pathological condition of a human, characterized by comprising selectively assaying one or two of the following four types of adiponectin derived from the human blood from the remainder of adiponectin and immunoassaying the target adiponectin multimer(s), through use of a protease and/or an antibody, and obtaining information about the disease or the pathological condition on the basis of the results of the selectively assay;

(1) ULMW-Ad: exhibits the highest mobility among the four main stained bands detected when adiponectin which has been purified from the serum or the plasma of the human is electrophoresed on polyacrylamide gel (2 to 15%) under non-denaturing conditions, and has a molecular weight around 100 kDa as measured through SDS-PAGE after intramolecular crosslinking;

(2) LMW-Ad: exhibits the second highest mobility, next to ULMW-Ad, among the four main stained bands detected when

adiponectin which has been purified from the serum or the plasma of the human is electrophoresed on polyacrylamide gel (2 to 15%) under non-denaturing conditions, has a molecular weight around 150 kDa as measured through SDS-PAGE after intramolecular crosslinking, and binds to albumin via a disulfide bond;

(3) MMW-Ad: exhibits the third highest mobility, next to LMW-Ad, among the four main stained bands detected when adiponectin which has been purified from the serum or the plasma of the human is electrophoresed on polyacrylamide gel (2 to 15%) under non-denaturing conditions, and has a molecular weight around 250 kDa as measured through SDS-PAGE after intramolecular crosslinking; and

(4) HMW-Ad: exhibits the lowest mobility among the four main stained bands detected when adiponectin which has been purified from the serum or the plasma of the human is electrophoresed on polyacrylamide gel (2 to 15%) under non-denaturing conditions, and has a molecular weight of 300 kDa or higher as measured through SDS-PAGE after intramolecular crosslinking.

15. The method as described in claim 14, wherein evaluation is performed on the basis of change in the amount(s) of one or more of ULMW-Ad, LMW-Ad, MMW-Ad, and HMW-Ad.

16. The method as described in claim 14, wherein evaluation is performed through calculating the ratio of at least two of the total amount of adiponectin, the amount of

ULMW-Ad, the amount of LMW-Ad, the amount of MMW-Ad, and the amount of HMW-Ad.

17. The method as described in claim 14, wherein evaluation is performed through correlation of an index with the amount(s) of one or more of ULMW-Ad, LMW-Ad, MMW-Ad, and HMW-Ad or with the ratio of at least two of the total amount of adiponectin, the amount of ULMW-Ad, the amount of LMW-Ad, the amount of MMW-Ad, and the amount of HMW-Ad.

18. The method as described in claim 14, wherein the disease or the pathological condition is type-II diabetes, arteriosclerotic disease, renal disease, hepatic disease, obesity, or metabolic syndrome.

19. The method as described in claim 14, for evaluating onset, diagnosis, development, prognosis, or therapeutic effect of type-II diabetes, arteriosclerotic disease, renal disease, hepatic disease, obesity, or metabolic syndrome.